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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/588,463

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Stefan Vogelin

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5486

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7590

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EXAMINER

BOSWORTH, KAMI A

ART UNIT

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3767

MAIL DATE

DELIVERY MODE

07/02/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/588,463	Applicant(s) VOGELIN ET AL.	
	Examiner KAMI A. BOSWORTH	Art Unit 3767	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-21, 25-27 and 29-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-21, 25-27 and 29-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/2/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/2/2010 has been entered. As per the amendment accompanying the request, claims 1-17, 22-24 and 28 have been cancelled, leaving claims 18-21, 25-27 and 29-43 presently pending.

Claim Objections

2. Claim 25 is objected to because of the following informalities: Claim 25 recites "the circle". However, the prior instance of the feature "circle" has been deleted from amended claim 18 and presently the feature of "the circle" in claim 25 lacks proper antecedent basis. Therefore, it is suggested to replace the term "the" with the term "a" to provide for proper antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 18, 19, 25, 26, 30, 32-36 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samson (US Pat 5,415,632) in view of Zelson (PG PUB 2004/0250864).

5. Re claim 18, Samson discloses a breast shield set 10 (Fig 1) for pumping off human breast milk, the breast shield set comprising a breast shield 24 (Fig 3), a breast shield connector 30 (Fig 3) with a threaded attachment (Col 3, Line 52) for connection to a milk collection vessel 14 (Fig 3), and a valve 16 (Fig 3) for limiting a dead volume during pumping off of breast milk, wherein the valve has a valve seat 36 (Fig 3) and a valve body 42 (Fig 3) with a circular diaphragm (Col 4, Lines 10-11), the valve body being arranged over the valve seat and closing the valve seat sealingly when it bears on said valve seat (Col 4, Lines 14-18), and the valve seat and valve body having openings (opening 38 in valve seat 36 and "valve body opening" in valve body 42; best shown in Fig A below) which are offset relative to one another (best shown in Fig A below) and which form a free passage when the diaphragm of the valve body lifts (Col 4, Lines 18-24). Samson does not disclose that the diaphragm valve body comprises elongate openings with a long dimension which are uniformly distributed adjacent the periphery of the diaphragm wherein the elongate openings are separated from one another by webs, the diaphragm designed to be weaker in the area adjacent to these webs or that the openings of the diaphragm further comprise compact openings which are present in areas generally between said elongate openings with said compact openings being

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smaller than said elongate openings and having a part that extends adjacent said periphery and another party that extends generally radially relative to a center of said diaphragm. Zelson, however, teaches a valve 10 (Fig 2,5) having a valve seat 32 (Fig 2) and a valve body 30 (Fig 5) with a circular diaphragm (formed by pieces 22,12,14 as seen in Fig 5), the valve body being arranged over the valve seat and closing the valve seat sealingly when it bears on said valve seat (Para 76), and the valve seat and valve body having openings (as seen in Fig 2,5) which are offset relative to one another (as seen in Fig 2) and which form a free passage when the diaphragm lifts (Para 76), wherein the valve body comprises elongate openings 18A (best seen in Fig B below) with a long dimension (as noted by double-headed arrow A in Fig B below) which are uniformly distributed adjacent the periphery of the diaphragm (as seen in Fig 5) wherein the elongate openings are separated from one another by webs 12 (Fig 5), the diaphragm designed to be weaker in the area 22 (Fig 5) adjacent to these webs (weaker compared to portion 14 due to the difference in the widths of the portions) and wherein the openings of the diaphragm further comprise compact openings 18B (best seen in Fig B below) which are present in areas generally between said elongate openings (as seen in Fig 5) with said compact openings being smaller than said elongate openings (as seen in Fig 5) and having a part (as noted by double-headed arrow B in Fig B below) that extends adjacent said periphery and another part (as noted by double-headed arrow C in Fig B below) that extends generally radially relative to a center of said diaphragm (as seen in Fig 5 and Fig B below) for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76). Therefore, it

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would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson to include elongate openings, webs, and compact openings, as taught by Zelson, for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76).

Fig A

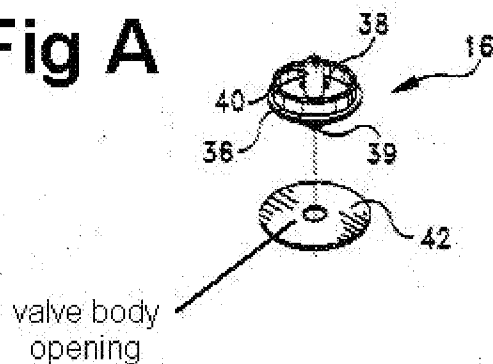
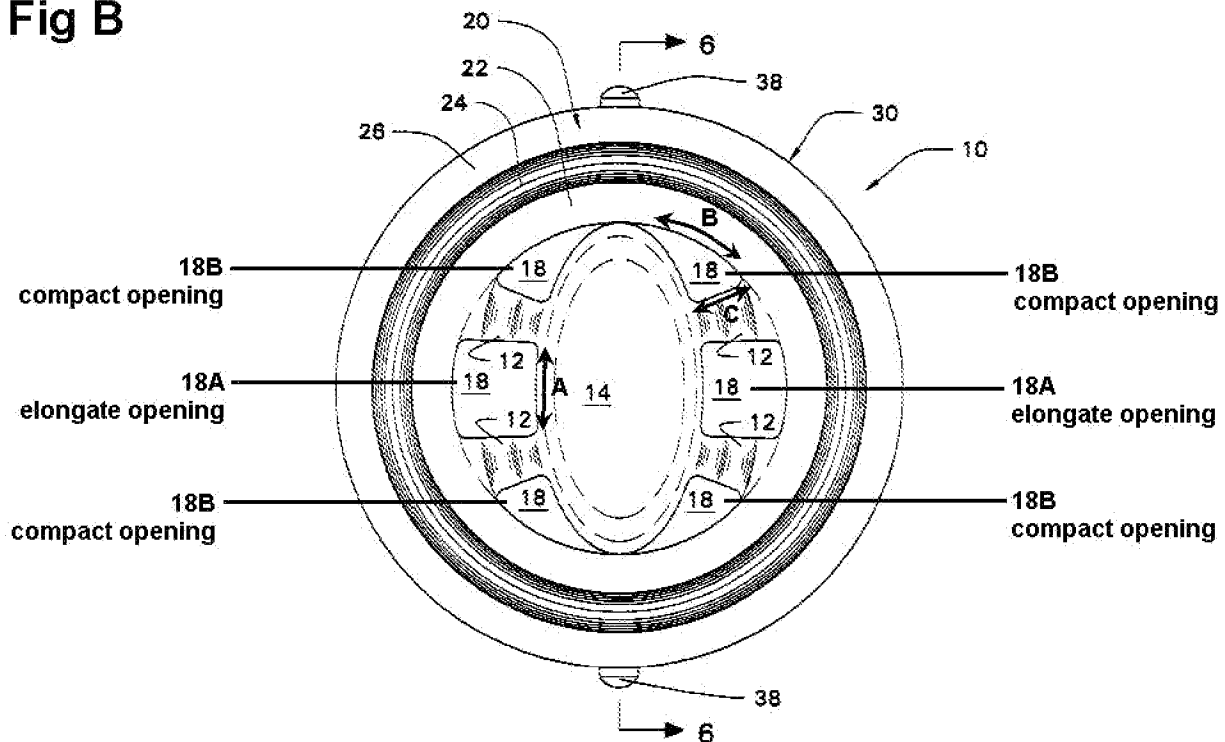


Fig B



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6. Re claim 19, Samson discloses that the valve seat of the valve can be fitted onto the breast shield connector (Col 4, Lines 3-6).

7. Re claim 25, Samson discloses all the claimed features except that a circle has a center point that coincides with the center point of the circular diaphragm. Zelson, however, teaches that a circle (formed by the elongated openings and compact openings) has a center point that coincides with the center point of the circular diaphragm (as seen in Fig 5) for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson to include a circle that has a center point that corresponds with the center point of the circular diaphragm, as taught by Zelson, for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76).

8. Re claim 26, Samson discloses all the claimed features except that the elongate openings form a common circular ring whose width is a multiple smaller than the smaller radius of the circular ring and which is provided with webs. Zelson, however, teaches that the elongate openings form a common circular ring (as seen in Fig 5) provided with webs 12 (Fig 5) for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson to include a elongate openings that form a common circular ring with webs provided therein, as taught by Zelson, for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76). Zelson does not explicitly teach

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dimensions of the ring. However, it would have been an obvious matter of design choice to modify Samson/Zelson to include the elongate openings forming a common circular ring whose width is a multiple smaller than the smaller radius of the circular ring since applicant has not disclosed that having such dimensions solves any stated problem or is for any particular purpose and it appears that the device would perform equally well with either designs. Furthermore, absent a teaching as to the criticality of these dimensions, this particular arrangement is deemed to have been known by those skilled in the art since the instant specification and evidence of record fail to attribute any significance (novel or unexpected results) to a particular arrangement. In *re Kuhle*, 526 F.2d 553,555,188 USPQ 7, 9 (CCPA 1975). Specifically, it would have been obvious to one having ordinary skill in the art at the time the invention was made to create the circular ring formed by the elongate openings to have a width that is a multiple smaller than its smaller radius, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

9. Re claim 30, Samson discloses all the claimed features except that compact openings are present adjacent to the webs and are arranged in the weakened area of the diaphragm. Zelson, however, teaches compact openings 18B (as seen in Fig B above) adjacent to webs 12 (Fig 5 and Fig B above) that are arranged in the weakened area (the area formed by portions 22 and 12 that are thinner than portion 14, Fig 2,5) of the diaphragm for the purpose of guiding and restrictively permitting the movement of the plugging portion of the valve in order to allow or prevent fluid to pass (Para 55).

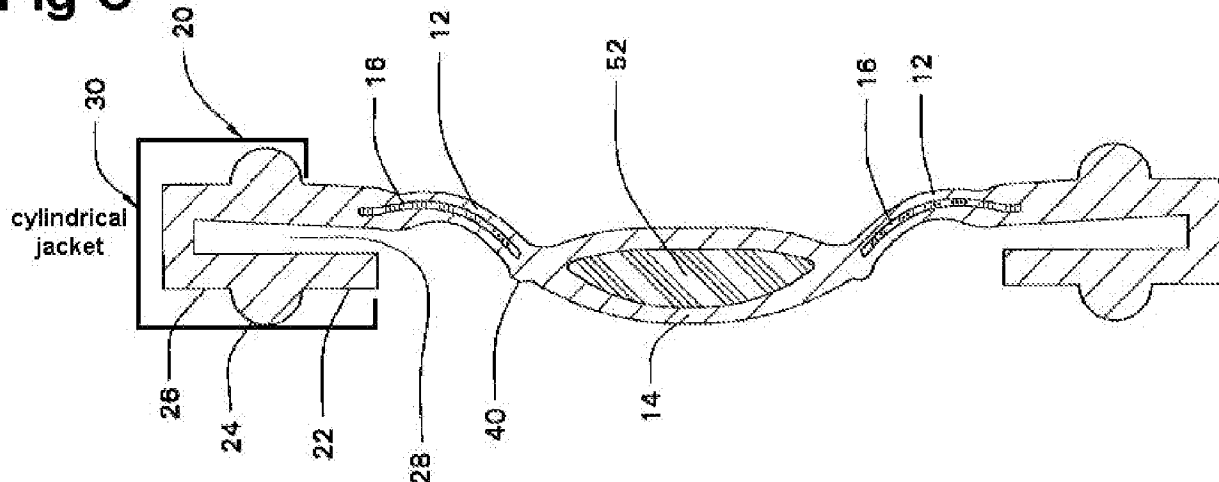
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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson to include compact openings adjacent the webs and arranged in the weakened area of the diaphragm, as taught by Zelson, for the purpose of guiding and restrictively permitting the movement of the plugging portion of the valve in order to allow or prevent fluid to pass (Para 55).

10. Re claims 32-36, Samson discloses all the claimed features except that the valve body has a cylindrical jacket connected circumferentially to the plane disk diaphragm. Zelson, however, teaches that the diaphragm except for the openings and weakened areas is designed as a plane, closed disk (as seen in Fig 5) which is connected circumferentially to a cylindrical jacket (noted as 26 in Fig 5, but best seen in Fig C below) in which the jacket has at least one notch 26 (as seen in Fig 2,3,5) extending parallel to a center axis of the cylindrical jacket (as seen in Fig 2,3,5), in which the jacket has an inner face provided with at least one groove 28 (Fig 3) extending at least partially about the circumference (as seen in Fig 3) and in which the jacket is provided with a bead 24 (Fig 2,3) extending at least partially about the circumference (as seen in Fig 5) for the purpose of holding the diaphragm and the valve seat together (Para 55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson to include a cylindrical jacket, as taught by

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Zelson, for the purpose of holding the diaphragm and the valve seat together (Para 55).

Fig C

11. Re claim 41, Samson discloses a breast shield set 10 (Fig 1) for pumping off human breast milk, the breast shield set comprising a breast shield 24 (Fig 3), a breast shield connector 30 (Fig 3) with a threaded attachment (Col 3, Line 52) for connection to a milk collection vessel 14 (Fig 3), and a valve 16 (Fig 3) for limiting a dead volume during pumping off of breast milk, wherein the valve has a valve seat 36 (Fig 3) and a valve body 42 (Fig 3) with a circular diaphragm (Col 4, Lines 10-11), the valve body being arranged over the valve seat and closing the valve seat sealingly when it bears on said valve seat (Col 4, Lines 14-18), and the valve seat and valve body having openings (opening 38 in valve seat 36 and "valve body opening" in valve body 42; best shown in Fig A above) which are offset relative to one another (best shown in Fig A above) and which form a free passage when the diaphragm of the valve body lifts (Col 4, Lines 18-24). Samson does not disclose that the diaphragm valve body comprises elongate openings which are uniformly distributed and follow a circle adjacent the periphery of

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the diaphragm and wherein the elongate openings are separated from one another by webs, the diaphragm designed to be weaker in the area adjacent to these webs, wherein said elongate openings are arc-shaped comprising a longitudinal dimension extending along said circle. Zelson, however, teaches a valve 10 (Fig 2,5) having a valve seat 32 (Fig 2) and a valve body 30 (Fig 5) with a circular diaphragm (formed by pieces 22,12,14 as seen in Fig 5), the valve body being arranged over the valve seat and closing the valve seat sealingly when it bears on said valve seat (Para 76), and the valve seat and valve body having openings (as seen in Fig 2,5) which are offset relative to one another (as seen in Fig 2) and which form a free passage when the diaphragm lifts (Para 76), wherein the valve body comprises elongate openings 18 (Fig 5) which are uniformly distributed and follow a circle adjacent the periphery of the diaphragm (as seen in Fig 5) wherein the elongate openings are separated from one another by webs 12 (Fig 5), the diaphragm designed to be weaker in the area adjacent to these webs (weaker compared to portion 14 due to the difference in the widths of the portions) wherein said elongate openings are arc-shaped (as seen in Fig 5) comprising a longitudinal dimension extending along said circle (noted by double-headed arrows A and B in Fig B above) for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson to include arc-shaped elongate opening and webs, as taught by Zelson, for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76).

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12. Re claim 42, Samson discloses a breast shield set 10 (Fig 1) for pumping off human breast milk, the breast shield set comprising a breast shield 24 (Fig 3), a breast shield connector 30 (Fig 3) with a threaded attachment (Col 3, Line 52) for connection to a milk collection vessel 14 (Fig 3), and a valve 16 (Fig 3) for limiting a dead volume during pumping off of breast milk, wherein the valve has a valve seat 36 (Fig 3) and a valve body 42 (Fig 3) with a circular diaphragm (Col 4, Lines 10-11), the valve body being arranged over the valve seat and closing the valve seat sealingly when it bears on said valve seat (Col 4, Lines 14-18), and the valve seat and valve body having openings (opening 38 in valve seat 36 and "valve body opening" in valve body 42; best shown in Fig A below) which are offset relative to one another (best shown in Fig A below) and which form a free passage when the diaphragm of the valve body lifts (Col 4, Lines 18-24). Samson does not disclose that the diaphragm valve body comprises elongate openings which are uniformly distributed and follow a circle adjacent the periphery of the diaphragm and wherein the elongate openings are separated from one another by webs, the diaphragm designed to be weaker in the area adjacent to these webs or that the diaphragm comprises thinned parts in the area adjacent to these webs, these thinned parts making the diaphragm weaker in this area. Zelson, however, teaches a valve 10 (Fig 2,5) having a valve seat 32 (Fig 2) and a valve body 30 (Fig 5) with a circular diaphragm (formed by pieces 22,12,14 as seen in Fig 5), the valve body being arranged over the valve seat and closing the valve seat sealingly when it bears on said valve seat (Para 76), and the valve seat and valve body having openings (as seen in Fig 2,5) which are offset relative to one another (as seen in Fig 2) and which form a free

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passage when the diaphragm lifts (Para 76), wherein the valve body comprises elongate openings 18 (Fig 5) which are uniformly distributed and follow a circle adjacent the periphery of the diaphragm (as seen in Fig 5) wherein the elongate openings are separated from one another by webs 12 (Fig 5), the diaphragm designed to be weaker in the area adjacent to these webs (weaker compared to portion 14 due to the difference in the widths of the portions) and wherein the diaphragm comprises thinned parts (outermost portion 22, Fig 5) in the area adjacent to these webs, these thinned parts making the diaphragm weaker in this area for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson to include elongate openings, webs, and thinned parts, as taught by Zelson, for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76).

13. Re claim 43, Samson discloses a breast shield set 10 (Fig 1) for pumping off human breast milk, the breast shield set comprising a breast shield 24 (Fig 3), a breast shield connector 30 (Fig 3) with a threaded attachment (Col 3, Line 52) for connection to a milk collection vessel 14 (Fig 3), and a valve 16 (Fig 3) for limiting a dead volume during pumping off of breast milk, wherein the valve has a valve seat 36 (Fig 3) and a valve body 42 (Fig 3) with a circular diaphragm (Col 4, Lines 10-11), the valve body being arranged over the valve seat and closing the valve seat sealingly when it bears on said valve seat (Col 4, Lines 14-18), and the valve seat and valve body having openings (opening 38 in valve seat 36 and "valve body opening" in valve body 42; best shown in

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Fig A below) which are offset relative to one another (best shown in Fig A below) and which form a free passage when the diaphragm of the valve body lifts (Col 4, Lines 18-24), the valve body having the same basic shaped as the valve seat (both circular as seen in Fig 3). Samson does not disclose that the diaphragm valve body comprises elongate openings which are uniformly distributed along a circle in the periphery of the diaphragm and wherein the elongate openings are separated from one another by webs, the diaphragm designed to be weaker in the area adjacent to these webs or that the valve body comprises the diaphragm and a cylindrical jacket that surrounds the diaphragm, wherein the valve body is a unitary part, and wherein the jacket can be fitted over the valve seat. Zelson, however, teaches a valve 10 (Fig 2,5) having a valve seat 32 (Fig 2) and a valve body 30 (Fig 5) with a circular diaphragm (formed by pieces 22,12,14 as seen in Fig 5), the valve body being arranged over the valve seat and closing the valve seat sealingly when it bears on said valve seat (Para 76), and the valve seat and valve body having openings (as seen in Fig 2,5) which are offset relative to one another (as seen in Fig 2) and which form a free passage when the diaphragm lifts (Para 76), wherein the valve body comprises elongate openings 18 (Fig 5) which are uniformly distributed along a circle in the periphery of the diaphragm (as seen in Fig 5) wherein the elongate openings are separated from one another by webs 12 (Fig 5), the diaphragm designed to be weaker in the area adjacent to these webs (weaker compared to portion 14 due to the difference in the widths of the portions), and wherein the valve body comprises the diaphragm and a cylindrical jacket (as seen in Fig C above) that surrounds the diaphragm, wherein the valve body is a unitary part and has

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the same basic shape as the valve seat (as seen in Fig 2), and wherein the jacket can be fitted over the valve seat (as seen in Fig 2, Para 55) for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson to include elongate openings, webs, and a cylindrical jacket, as taught by Zelson, for the purpose of forming a valve through which fluids may pass regardless of its orientation (Para 74-76).

14. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samson (US Pat 5,415,632)/Zelson (PG PUB 2004/0250864) in view of Edwards et al. (US Pat 5,025,829) and Ytteborg (PG PUB 2003/0153869) .

15. Re claims 20 and 21, Samson/Zelson disclose all the claimed features except that the breast shield, connector, and valve seat are made of the autoclavable material polypropylene and that the valve body is made of the non-autoclavable material thermoplastic elastomer. Ytteborg, however, teaches a breast shield set made entirely of the autoclavable material polypropylene (Para 58) for the purpose of allowing strong cleaning (Para 58). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson/Zelson to include a breast shield, connector, and valve seat made of polypropylene, as taught by Ytteborg, for the purpose of allowing strong cleaning (Para 58). Furthermore, Edwards et al. teaches a valve body 10 (Fig 1) for use in pumping apparatuses that is made from thermoplastic elastomer (Col 2, Lines 51-52), a known non-autoclavable material, for the purpose of providing adequate flexibility (Col 2, Lines 58-59). Therefore, it would have been

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obvious to one of ordinary skill in the art at the time the invention was made to modify Samson/Zelson to include a valve body made of thermoplastic elastomer, as taught by Edwards et al., for the purpose of providing adequate flexibility (Col 2, Lines 58-59).

Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Samson/Zelson to include the use of polypropylene in the breast shield, connector and valve seat and thermoplastic elastomer in the valve body since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

16. Claims 27, 38, 39, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samson (US Pat 5,415,632)/Zelson (PG PUB 2004/0250864) in view of Edwards et al. (US Pat 5,025,829).

17. Re claim 27, Zelson disclose that multiple elongate openings and multiple webs are present (as seen in Fig 5), but Samson/Zelson do not disclose that exactly three elongate openings and three webs are present. Edwards et al., however, teaches a valve body 10 (Fig 1) having three elongate openings 16 (Fig 1) and three webs 20 (Fig 1) (Col 3, Lines 49-54) for the purpose of providing area for flow (Col 3, Lines 57-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson/Zelson to include exactly three elongate openings and three webs, as taught by Edwards et al., for the purpose of providing area for flow (Col 3, Lines 57-59). Further, it would have been an obvious matter of design choice to modify Samson/Zelson to include exactly three elongate openings and three

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webs since applicant has not disclosed that having such an amount solves any stated problem or is for any particular purpose and it appears that the device would perform equally well with either designs. Furthermore, absent a teaching as to the criticality of this number, this particular arrangement is deemed to have been known by those skilled in the art since the instant specification and evidence of record fail to attribute any significance (novel or unexpected results) to a particular arrangement. In *re Kuhle*, 526 F.2d 553, 555, 188 USPQ 7, 9 (CCPA 1975). Specifically, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson/Zelson to include exactly three elongate openings and three webs since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. In *re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

18. Re claims 38, 39, and 40, Samson/Zelson disclose all the claimed features except that the valve body is made of the non-autoclavable material thermoplastic elastomer. Edwards et al., however, teaches a valve body 10 (Fig 1) for use in pumping apparatuses that is made from thermoplastic elastomer (Col 2, Lines 51-52), a known non-autoclavable material, for the purpose of providing adequate flexibility (Col 2, Lines 58-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson/Zelson to include a valve body made of thermoplastic elastomer, as taught by Edwards et al., for the purpose of providing adequate flexibility (Col 2, Lines 58-59).

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19. Claims 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samson(US Pat 5,415,632)/Zelson (PG PUB 2004/0250864) in view of Sheppard (US Pat 3,827,456).

20. Re claims 29 and 31, Samson/Zelson disclose all the claimed features except that the compact openings have a T-shaped configuration. Sheppard, however, teaches a valve body (Fig 10) having compact openings 302,304 (Fig 10) having a T-shaped configuration (as seen in Fig 10) that each have a foot 302 (Fig 10) and a bar 304 (Fig 10) extending transversely over the foot, and in which the foot is oriented toward webs (formed by the wall) and radially toward a center point of the circle of the valve body (as seen in Fig 10) for the purpose of increasing the flexibility of the valve body (Col 9, Lines 43-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson/Zelson to include T-shaped openings, as taught by Sheppard, for the purpose of increasing the flexibility of the valve body (Col 9, Lines 43-47).

21. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Samson(US Pat 5,415,632)/Zelson (PG PUB 2004/0250864) in view of Aoki et al. (US Pat 3,981,636).

22. Re claim 37, Zelson discloses that the valve seat 32 (Fig 2) has a plane surface with a central opening (as seen in Fig 2) but Samson/Zelson do not disclose extending openings interrupted by webs. Aoki et al., however, teaches a valve seat 62 (Fig 6) having a plane surface (as seen in Fig 5) with a central opening 621 (Fig 6) and with openings 622a (Fig 6) extending around this central opening, the extending openings

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being interrupted by webs (as seen in Fig 6) for the purpose of regulating flow (Col 3, Lines 44-45). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Samson/Zelson with a valve seat having extending openings and webs, as taught by Aoki et al., for the purpose of regulating flow (Col 3, Lines 44-45).

Response to Arguments

23. Applicant's arguments with respect to claims 18-21, 25-27 and 29-43 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAMI A. BOSWORTH whose telephone number is (571)270-5414. The examiner can normally be reached on Monday - Thursday, 7:00 am to 4:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Simons can be reached on (571)272-4965. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. A. B./

Examiner, Art Unit 3767

/Kevin C. Sirmons/

Supervisory Patent Examiner, Art Unit 3767